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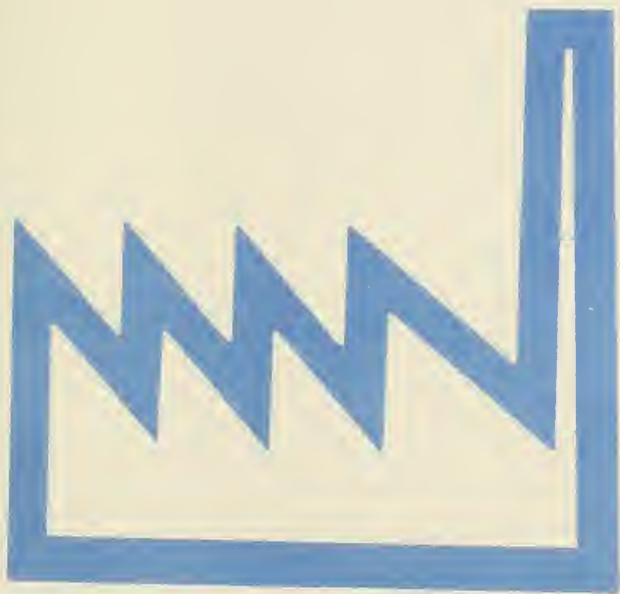
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3JECT SERIES

Textile Machinery In Place



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If you have any questions concerning the statistics in this report, call (301) 763-7536.

1987
Census of
Manufactures

MC87-S-2

SUBJECT SERIES

Textile Machinery
In Place

Issued July 1990



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EXPLANATORY TEXT

PURPOSE AND USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source of facts about the structure and functioning of the Nation's economy. They provide essential information for government, business, industry, and the general public.

Economic censuses furnish an important part of the framework for such composite measures as the gross national product, input-output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policy-making agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local Governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries, and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic censuses every 5 years, covering years ending in 2 and 7. The 1987 Economic Censuses consist of the

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Transportation
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1987 Census of Agriculture and 1987 Census of Governments are conducted separately.) The next economic censuses are scheduled to be taken in 1993 covering the year 1992.

AVAILABILITY OF THE DATA

The results of each of the economic censuses are available in printed reports, for sale by the U.S. Government Printing Office, and on microfiche, computer tape, compact discs with read-only memory, and flexible diskettes, for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Census Bureau, Washington, DC 20233. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State Data Centers in every State and Business and Industry Data Centers in many States also supply economic census statistics.

WHAT'S NEW IN 1987

Several changes have taken place for the 1987 censuses. Data will be reported on the basis of the newly revised Standard Industrial Classification (SIC) system with selected reports including "bridge tables," linking the old and new classification systems. A new set of metropolitan areas has been adopted, and more detailed information will be available for businesses with no paid employees. For additional information on these changes, review the subsequent text.

HISTORICAL INFORMATION

The economic censuses have been taken together as an integrated program at 5-year intervals since 1967, and before that for 1963, 1958, and 1954. Prior to that time, the individual censuses were taken separately at varying intervals.

The economic censuses trace their beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial

activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 manufactures census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade, and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 economic censuses were the first to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. These were the first censuses to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records have also been used to provide basic statistics as well for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic censuses, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The Census of Construction Industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The Census of Transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks. New for 1987 are publications reporting on business establishments engaged in several transportation industries, paralleling the data on establishments in other sectors. This is part of a gradual expansion in coverage of industries previously subjected to government regulation. The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic censuses in 1972 along with the Survey of Women-Owned Businesses.

Economic censuses have also been taken in Puerto Rico since 1909, in the Virgin Islands and Guam since 1958, and in the Northern Mariana Islands since 1982.

Statistical reports from the 1982 and earlier censuses provide historical figures for the study of long-term time series, and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the censuses provide complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, the results of which appear in publication series such as *Current Business Reports* (retail and wholesale trade and service industries), the *Annual Survey of Manufactures*, *Current Industrial Reports*, and the *Quarterly Financial Report*. Most of these surveys, while providing more frequent

observations, yield less kind-of-business and geographic detail than the censuses. The *County Business Patterns* program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1987 Economic Censuses and Related Statistics*. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1987 Economic Censuses*. Contact Customer Services for information on availability.

TEXTILE MACHINERY IN PLACE

General

This report supplements the 1987 Census of Manufactures for SIC Major Group 22, Textile Mill Products. The data included in this report were collected in an independent survey through a mail canvass on Census Form MC-22Z, Textile Machinery in Place as of June 30, 1988, as part of the 1987 Census of Manufactures. A copy of this form is shown in the appendixes.

Scope of Survey

The manufacturing establishments reporting in this survey are defined as a single physical location where manufacturing operations occur (a factory, mill, or plant). They were selected from the 1987 Census of Manufactures mailing panel for all textile industries, with the exception of plants primarily engaged in manufacturing coated fabrics (SIC 2295); cordage and twine (SIC 2298); and felts, textile paddings, batting and wadding, jute goods, and reprocessing of fibers and mill waste (SIC 2299). Establishments primarily engaged in producing manmade cellulosic and organic fibers (SIC's 2823 and 2824) also are within scope of the survey to provide information on yarn texturizing.

Survey Operations

The 3,639 establishments within the scope of this survey were mailed the MC-22Z report form on June 30, 1988. The survey panel was asked to report the number of machines in place as of that date, whether the machinery was used for production, prototype, sampling, or was idle. For the purpose of this report, "machines in place" includes all machinery set up in operating positions.

The report form included two major sections. The first section requested the respondent to verify the physical location and to check the operations (spinning, throwing, yarn production, etc.) performed at that location. The

second section was divided according to these different operations. Under each operation, different machines were listed by type, with space for the respondent to enter the appropriate number of machines in place at that location. Each respondent received a complete copy of the report form, including all operations and accompanying machinery descriptions collected in this report.

Upon receipt of the forms and data keying, Census personnel checked to ensure consistency between the report sections. In addition, the data on this survey were checked for consistency with data collected in the Current Industrial Reports series where establishment coverage overlapped. Census personnel called and obtained data via telephone where possible from survey panel members that did not respond.

Survey Coverage

As a means of evaluating the coverage of the information collected on this survey, the employment figures for those establishments responding to this survey were tabulated by four-digit SIC industries in which the responding establishments are classified. The total employment figure of the reporting establishments of each four-digit SIC industry was compared to the total employment figure of

the respective four-digit SIC industry as shown in the 1987 Census of Manufactures final industry reports. In general, the figures presented in this report are aggregates of reported data from establishments representing approximately 90 percent of total employment in the industries covered by this survey.

Census Disclosure Rules

In accordance with Federal law governing census reports, no data are published that would disclose data for an individual establishment or company. However, the suppressed data are included in the higher level totals.

Comparable Census Bureau Data

The data for selected types of machinery in place also are collected in the Current Industrial Reports (CIR) series of the Census Bureau. Reference is made in footnotes of each table, where applicable, to indicate the appropriate CIR series containing the comparable machinery-in-place data. Earlier Censuses of Manufactures include similar textile machinery-in-place data for 1982, 1977, 1972, 1967, 1963, and 1958.

Table 1. Yarn Spinning Equipment: June 30, 1988 and June 30, 1983

Type of equipment	June 30, 1988	June 30, 1983	Type of equipment	June 30, 1988	June 30, 1983
COTTON SYSTEM MACHINERY			WOOLEN, WORSTED, AND OTHER SYSTEMS		
Automated bale feed machines.....number...	832	843	Woolen and worsted cards.....number...	1 185	1 371
Automated blending machines.....do...	1 819	2 313	60 inches or less.....do...	871	886
Pickers.....do...	421	688	More than 60 inches.....do...	314	485
Cards.....do...	15 851	19 864	Intersector gills.....do...	817	(NA)
Chute fed.....do...	13 102	12 232	Worsted combers.....do...	319	382
All other.....do...	2 749	7 632	Machines for converting manmade fiber tow to top or sliver.....do...	172	370
Drawing machines.....deliveries...	14 387	16 550	Spinning spindles.....spindles...	660 177	758 807
Combers.....do...	3 036	4 998	For carpet yarn.....do...	121 178	193 189
Roving machinery spindles.....number...	301 805	414 971	Woolen system.....do...	18 764	(D)
Spinning spindles:			Worsted system.....do...	82 828	77 504
Ring spindles.....number...	11 303 882	14 760 961	All other.....do...	19 586	(D)
1 3/4 inches and smaller.....do...	1 704 055	2 336 731	For knitting yarn (including craft and hand knitting).....do...	187 439	(D)
1 13/16 through 2 1/4 inches.....do...	7 808 418	9 540 920	Woolen system.....do...	53 538	54 484
2 5/16 inches and larger.....do...	1 791 409	2 883 310	Worsted system.....do...	114 080	128 704
Rotors.....producing positions...	549 486	250 040	American (modified) system.....do...	17 054	34 619
1 3/4 inches and smaller.....do...	272 176	(D)	All other.....do...	2 767	(D)
1 13/16 through 2 3/4 inches.....do...	255 932	174 816	For all other uses.....do...	351 560	(D)
2 13/16 inches and larger.....do...	21 378	(D)	Woolen system.....do...	100 405	(D)
All other.....do...	39 652	66 156	Worsted system.....do...	218 310	(D)
Automatic spinning doffers.....number...	3 431	6 510	American modified system.....do...	22 927	(D)
For ring spindles.....do...	1 001	(NA)	All other.....do...	9 918	(D)
For ringless spindles.....do...	2 430	(NA)	Doubling and twisting spindles.....do...	115 988	130 453
Doubling and twisting spindles.....do...	893 123	1 216 223	Ring spindles.....do...	62 957	100 159
Ring spindles.....do...	690 563	1 083 387	4 inches and smaller.....do...	18 169	33 275
4 inches and smaller.....do...	432 500	674 844	Larger than 4 inches.....do...	44 788	66 884
Larger than 4 inches.....do...	258 063	408 543	Two-for-one twisting spindles.....do...	53 031	30 294
Two-for-one.....do...	202 560	132 836	Throwing spindles including up-twisters of either the conventional or two-for-one type.....do...	6 832	830
Throwing spindles.....do...	67 760	117 996	Winders and spoolers.....number...	25 709	37 562
Winders and spoolers.....producing position...	464 472	590 358	Automatic.....do...	13 593	18 365
Automatic.....do...	177 181	292 454	Manual.....do...	12 116	19 197
Manual.....do...	287 291	297 904			

Table 2. Spinning Spindles in Place by Geographic Area: June 30, 1988 and June 30, 1983

Geographic area	June 30, 1988					June 30, 1983				
	Cotton system		Woolen system	Worsted system	Other systems	Cotton system		Woolen system	Worsted system	Other systems
	Ring	Other				Ring	Other			
United States	11 303 882	589 138	172 707	455 199	32 271	14 760 961	316 196	(D)	389 136	(D)
Cotton growing States ¹	11 221 867	585 028	(D)	384 914	17 643	14 556 328	305 995	(D)	(D)	(D)
Alabama.....	916 526	83 502	-	7 912	-	1 453 910	31 168	-	(D)	-
Georgia.....	1 151 001	67 665	35 734	78 056	(D)	1 688 192	49 010	(D)	3 804	(D)
North Carolina.....	4 191 600	287 215	20 592	206 026	6 307	5 115 149	126 641	32 271	197 812	(D)
South Carolina.....	4 121 392	101 074	-	54 132	(D)	5 077 436	72 452	(D)	73 612	(D)
Tennessee.....	281 724	15 682	-	(D)	(D)	422 698	9 570	7 328	-	(D)
Texas.....	(D)	(D)	(D)	-	-	130 573	10 962	(D)	-	-
Virginia.....	432 492	13 188	-	(D)	(D)	602 896	(D)	-	(D)	(D)
Other.....	(D)	(D)	(D)	26 052	(D)	65 474	(D)	(D)	(D)	(D)
Rest of United States...	82 015	4 110	(D)	70 285	14 628	204 633	10 201	(D)	(D)	(D)
Maine.....	(NA)	(NA)	34 013	(D)	(D)	(NA)	(NA)	33 002	(D)	(D)
Massachusetts.....	(NA)	(NA)	4 884	(D)	(D)	(NA)	(NA)	17 652	(D)	(D)
New Hampshire.....	(NA)	(NA)	11 388	(D)	-	(NA)	(NA)	14 784	(D)	-
New York.....	(NA)	(NA)	7 340	(D)	-	(NA)	(NA)	6 720	(D)	-
Pennsylvania.....	(NA)	(NA)	24 100	(D)	(D)	(NA)	(NA)	7 078	(D)	(D)
Rhode Island.....	(NA)	(NA)	(D)	26 856	-	(NA)	(NA)	(D)	22 856	-

¹Includes Alabama, Arizona, Arkansas, California, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

Table 3. Yarn Preparation Equipment: June 30, 1988 and June 30, 1983

Type of machinery	June 30, 1988	June 30, 1983	Type of machinery	June 30, 1988	June 30, 1983
For filament carpet yarn:			For textured yarn—Con.		
Twisting spindles number..	77 169	70 538	False twist machines—Con.		
Direct cable do..	63 406	58 956	Single heater—Con.		
Ply do..	4 983	11 582	Friction spindle spindles..	40 586	74 394
Two for one do..	8 780		Belt spindle do..	(D)	38 624
Heatsetting equipment do..	686	584	Double heater do..	110 822	150 543
Autoclaves do..	65	63	Pin spindle do..	(D)	60 046
Continuous units do..	621	521	Friction spindle do..	92 854	83 126
			Belt spindle do..	(D)	7 371
For spun carpet yarn:			Air jet machines producing positions..	19 183	44 519
Twisting spindles number..	66 839	85 640	Free standing nonintegrated	(D)	6 858
Direct cable do..	7 675	7 136	Integrated with other texturing		
Ply do..	35 596	78 504	machines do..	(D)	37 661
Two for one do..	23 568		Two-for-one twisting spindles do..	16 373	13 400
Heatsetting equipment do..	733	612	Precision winders do..	26 430	23 310
Autoclaves do..	158	104	For flat filament yarn preparation:		
Continuous units do..	575	508	Two-for-one twisting spindles do..	89 438	72 026
For textured yarn:			Direct cable twisters do..	44 747	41 697
False twist machines spindles..	170 999	324 373	For warp preparation:		
Single heater do..	60 177	173 830	Warping and beaming equipment number..	2 324	2 762
Pin spindle do..	(D)	60 812	Slashing and sizing equipment do..	666	872

Table 4. Broad Fabric Weaving Looms in Place by Type and Width of Loom: June 30, 1988

Width of loom ¹	Shuttle type weaving looms				
	Total	Single shuttle (cam and dobby)	Multiple shuttle box or head motion looms	Jacquard	Double shuttle pile and plush
Shuttle type looms	69 987	61 383	4 686	2 992	926
53 inches or less	39 594	34 932	2 717	1 038	907
54 to 60 inches	4 495	3 729	(D)	(D)	(D)
61 to 80 inches	18 178	16 753	591	(D)	(D)
81 to 90 inches	4 075	3 068	(D)	(D)	(D)
91 inches or more	3 645	2 901	284	460	-
Width of loom ¹	Shuttleless type weaving looms				
	Total	Single filling insertion	Multifilling insertion		
Shuttleless type looms	66 961	41 047	25 914		
Water jet	6 234	6 046	188		
70 inches or less	(D)	(D)	(D)		
71 to 80 inches	(D)	(D)	(D)		
81 to 90 inches	(D)	(D)	(D)		
91 inches or more	-	-	-		
Air jet	13 698	11 416	2 282		
50 inches or less	(D)	(D)	(D)		
51 to 60 inches	(D)	(D)	(D)		
61 to 70 inches	(D)	(D)	(D)		
71 to 80 inches	4 754	3 415	1 339		
81 to 90 inches	(D)	(D)	(D)		
91 to 110 inches	(D)	(D)	(D)		
111 inches or more	(D)	(D)	(D)		
Rapier	18 738	6 638	12 100		
50 inches or less	1 139	968	171		
51 to 60 inches	4 047	1 472	2 575		
61 to 70 inches	3 798	1 820	1 978		
71 to 80 inches	5 456	1 016	4 440		
81 to 90 inches	1 953	762	1 191		
91 to 110 inches	1 015	131	884		
111 inches or more	1 330	469	861		
Projectile	28 291	16 947	11 344		
90 inches or less	4 358	1 696	2 662		
91 to 110 inches	2 897	2 446	451		
111 inches or more	19 099	12 209	6 890		
Other	1 937	596	1 341		

Note: Data for broad fabric weaving looms in place are collected on a quarterly basis and published in Current Industrial Reports, series MQ-22T, Broadwoven Fabrics (Gray).

¹Maximum width that can be woven (width at take-off point), not finished width of fabric.

Table 5. **Broad Fabric Weaving Looms in Place by Type and Width of Loom: June 30, 1983**

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see Introductory text.]

Width of loom ¹	Shuttle type weaving looms				
	Total	Single shuttle (cam and dobby)	Multiple shuttle box or head motion looms	Jacquard	Double shuttle pile and plush
Shuttle type looms -----	147 392	129 480	11 337	4 535	2 040
40 inches or less -----	12 891	10 838	887	(D)	(D)
41 to 50 inches -----	59 848	55 839	2 257	1 004	748
51 to 60 inches -----	27 113	21 038	4 676	631	768
61 to 70 inches -----	24 839	23 225	777	601	236
71 to 80 inches -----	3 806	2 287	940	528	51
81 to 90 inches -----	11 179	10 520	369	(D)	(D)
91 to 100 inches -----	3 534	2 582	687	(D)	(D)
101 to 130 inches -----	(D)	2 363	473	(D)	-
131 inches or more -----	(D)	788	271	(D)	-
Width of loom ¹	Shuttleless type weaving looms				
	Total	Single filling insertion	Multifilling insertion		Pile and plush
			2 colors	More than 2 colors	
Shuttleless type looms -----	53 798	34 920	6 022	11 223	1 633
Water Jet -----	5 420	4 872	(D)	38	(D)
50 inches or less -----	(D)	(D)	-	-	-
51 to 60 inches -----	(D)	537	-	(D)	-
61 to 70 inches -----	(D)	(D)	-	-	-
71 to 80 inches -----	(D)	1 372	(D)	-	-
81 to 90 inches -----	2 496	2 025	(D)	(D)	(D)
91 to 100 inches -----	-	-	-	-	-
101 to 130 inches -----	-	-	-	-	-
131 inches or more -----	(D)	(D)	-	-	-
Air Jet -----	7 151	(D)	839	(D)	-
50 inches or less -----	1 152	1 152	-	-	-
51 to 60 inches -----	(D)	(D)	-	(D)	-
61 to 70 inches -----	2 603	2 235	(D)	(D)	-
71 to 80 inches -----	2 257	1 786	(D)	(D)	-
81 to 90 inches -----	(D)	(D)	-	-	-
91 to 100 inches -----	(D)	-	-	(D)	-
101 to 130 inches -----	474	355	(D)	(D)	-
131 inches or more -----	(D)	(D)	-	-	-
Rapier -----	22 802	12 462	2 236	6 968	1 136
50 inches or less -----	2 959	2 645	-	(D)	(D)
51 to 60 inches -----	5 873	3 783	628	984	478
61 to 70 inches -----	5 204	2 942	493	1 614	155
71 to 80 inches -----	4 396	899	802	2 631	64
81 to 90 inches -----	2 848	1 720	67	1 061	-
91 to 100 inches -----	(D)	(D)	77	(D)	(D)
101 to 130 inches -----	(D)	(D)	(D)	413	(D)
131 inches or more -----	206	(D)	(D)	107	(D)
Projectile -----	17 427	(D)	2 457	3 464	(D)
80 inches or less -----	412	(D)	(D)	284	-
81 to 100 inches -----	(D)	960	(D)	1 852	-
101 to 130 inches -----	(D)	6 277	1 092	534	(D)
131 inches or more -----	(D)	4 039	1 338	794	(D)
Other -----	998	67	(D)	(D)	(D)
50 inches or less -----	(D)	(D)	-	-	-
51 to 60 inches -----	(D)	-	-	(D)	-
61 to 70 inches -----	(D)	(D)	-	-	(D)
71 to 80 inches -----	(D)	(D)	-	-	(D)
81 to 90 inches -----	(D)	-	-	(D)	-
91 to 100 inches -----	-	-	-	-	-
101 to 130 inches -----	(D)	-	-	(D)	-
131 inches or more -----	(D)	(D)	(D)	-	-

Note: Data for broad fabric weaving looms in place are collected on a quarterly basis and published in Current Industrial Reports, series MQ-22T, Broadwoven Fabrics (Gray).

¹Maximum width that can be woven (width at take-off point), not finished width of fabric.

Table 6. Broad Fabric Weaving Looms by Geographic Area: June 30, 1988 and June 30, 1983

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Geographic area	June 30, 1988			June 30, 1983		
	Total	Shuttle type looms	Shuttleless type looms	Total	Shuttle type looms	Shuttleless type looms
United States	136 948	69 987	66 961	201 190	147 392	53 798
Alabama	8 490	5 754	2 736	12 312	9 843	2 469
California	(D)	(D)	(D)	(D)	(D)	(D)
Georgia	17 505	9 177	8 328	25 576	19 364	6 212
Maine	1 108	683	425	(D)	1 168	(D)
Massachusetts	1 518	446	1 073	2 682	2 033	649
New Hampshire	(D)	(D)	(D)	(D)	(D)	(D)
New Jersey	(D)	829	(D)	(D)	831	(D)
New York	(D)	(D)	(D)	(D)	1 939	(D)
North Carolina	26 987	7 573	19 414	40 555	24 808	15 747
Pennsylvania	3 915	2 279	1 636	4 083	2 871	1 212
Rhode Island	(D)	(D)	(D)	(D)	582	(D)
South Carolina	56 837	34 553	22 284	82 713	65 331	17 382
Tennessee	(D)	(D)	(D)	5 363	3 943	1 420
Virginia	10 548	5 490	5 058	(NA)	(NA)	(NA)

Note: Detail may not add to total due to region, division, and State statistics which have been withheld to avoid disclosing data for individual companies.

Table 7. Fabric Forming Equipment Except Broad Looms: June 30, 1988 and June 30, 1983

Type of equipment	June 30, 1988	June 30, 1983	Type of equipment	June 30, 1988	June 30, 1983
Knitting machines, except hosiery	41 192	40 296	Warp knitting machines	6 926	6 568
Weft knitting machines	34 266	33 728	Tricot	2 788	2 985
Machines for garments, trims, and collars	14 854	10 644	Raschel	3 264	3 180
Flat bar	6 906	4 918	Elastic, power net	1 162	(NA)
Cylinder and dial	3 562	2 109	Other	2 102	(NA)
Circular lengths	2 248	2 608	Weft insertion	302	148
Rib	1 677	2 219	All other, including simplex, milanese, loop vending ..	572	255
Interlock	571	389	Narrow fabric looms	7 238	9 288
Circular headwear and other small diameter machines	1 938	1 009	Tape looms	3 361	5 709
Machines for yard goods, outerwear, and underwear ..	19 612	23 084	Shuttle	1 207	1 468
Circular open top latch needle machines	8 594	8 897	Shuttleless	2 154	4 241
Plain	3 416	5 382	Webbing looms	1 516	3 579
Multiple track	3 053	1 299	Shuttle	548	1 154
Fleece	2 411	707	Shuttleless	968	2 425
Two end	1 463	527	Elastic looms	2 361	(NA)
12 to 17 cut	303	129	Shuttle	(D)	(NA)
18 cut and finer	1 160	398	Shuttleless	(D)	(NA)
Three end	948	180	Braiders	39 750	(NA)
12 to 17 cut	(D)	130	Circular hosiery machinery	65 554	66 944
18 cut and finer	(D)	50	Ladies' panty hose, stockings, sheer knee high, and anklets	18 226	20 158
Other	642	592	1 feed	906	1 597
Patterned jersey	1 600	1 599	2 feed	1 833	4 607
Sliver knit	525	617	3 and 4 feed	14 656	12 336
Circular spring needle machines	2 878	4 796	6 to 8 feed	831	1 618
Fleece	2 204	4 123	Men's and boys' sock machines	33 188	33 092
6 to 8 cut	116	462	1 feed	18 654	20 790
9 to 14 cut	1 636	2 876	2 feed	11 100	10 378
15 cut and finer	452	785	3 and 4 feed	3 434	1 924
Other	674	673	Women's, misses', children's and infants' sock machines	14 140	13 694
Cylinder and dial machines	8 140	9 391	1 feed	8 448	13 694
Interlock	2 136	2 336	2 feed	4 607	
18 cut or less	825	1 082	3 and 4 feed	1 085	
22 to 24 cut	1 037	829	Other fabric forming machines	1 077	1 558
28 cut and finer	274	425	Fine gauge tufting (noncarpet)	20	75
Rib body size underwear machines	1 323	3 276	Needle looms	378	500
Double knit including eight lock	4 214	3 377	Web forming machines	218	344
18 cut or less	3 153	1 991	Stitch bonding machines	97	121
22 to 24 cut	785	1 172	All other nonwoven fabric forming machines	364	518
28 cut or more	276	214	Carpet forming machines	3 715	4 189
Purl or links	467	402	Weaving looms	383	830
			Tufting machines	1 772	1 943
			Less than 9 feet wide	351	395
			9 to 12 feet wide	1 089	848
			More than 12 feet wide	332	700
			Custom (multipass) tufting machines	512	395
			Braiding machines	862	848
			Knitting machines	(D)	82
			Needle punch looms	156	47
			Fusion bonding machines	(D)	44

Table 8. **Fabric Forming Equipment Except Broad Looms by State: June 30, 1988**

Geographic area	Knitting machines	Narrow fabric looms	Circular hosiery machines	Carpet machines
United States	41 192	7 238	65 554	3 715
Alabama	1 210	650	4 455	150
California	1 521	(D)	(D)	187
Georgia	1 279	(D)	2 558	1 417
Maine	(D)	(D)	-	(D)
Massachusetts	574	414	(D)	(D)
New Hampshire	(D)	319	(D)	(D)
New Jersey	2 868	220	-	-
New York	6 689	163	(D)	(D)
North Carolina	12 785	1 148	43 447	486
Pennsylvania	3 200	728	2 300	107
Rhode Island	515	831	-	(D)
South Carolina	2 151	1 511	2 158	575
Tennessee	909	90	5 563	(D)
Texas	129	(D)	-	-
Virginia	2 507	(D)	(D)	(D)

Table 9. **Textile Finishing Machinery in Place: June 30, 1988 and June 30, 1983**

Type of machinery	June 30, 1988	June 30, 1983	Type of machinery	June 30, 1988	June 30, 1983
Scouring and bleaching ranges	648	670	Dyeing machinery—Con.		
Rope	224	219	Carpet dyeing machines	321	568
Open width	252	261	Garment dyeing machines	651	1 036
Other	172	190	Printing machinery:		
Mercerizing ranges	56	69	Roller printing machines	122	209
Dyeing machinery:			Screen printing machines	429	454
Raw stock and bale dyeing machines ¹	276	231	Flat screen	164	163
Yarn dyeing machines	2 527	2 471	Rotary screen	258	193
Package yarn ¹	1 280	1 263	Carpet printing	7	98
Beam	267	395	Continuous piece goods	14	60
Continuous	150	92	Other printing equipment	150	176
Skein	584	623	Compressive shrinkage machines	348	278
Other	246	98	For woven fabrics	193	223
Batch fabric dyeing machines	5 440	5 769	For knit fabrics	155	55
Jigs	798	1 080	Tenter frames	1 139	1 316
Padders	369	263	Solvent processing units (batch and continuous)	74	79
Becks (boxes, winches, dye kettles, etc.):			Decating	114	159
Atmospheric type	1 785	1 962	Fulling mills	185	244
Pressure type	364	499	Surface finishing machinery	2 386	2 525
Jet	1 352	1 349	Napping	861	885
Beam	387	445	Shearing	579	631
Other	387	171	Brushing, sueding, and sanding	141	259
Continuous fabric dyeing ranges	276	288	Embossing	80	86
Thermosol-pad-steam	117	144	Calendaring	725	664
Other continuous	159	144	Corduroy and velveteen cutting machines	117	338

¹Number of keirs or kettles.Table 10. **Finishing Machinery by State: June 30, 1988**

Geographic area	Bleaching and scouring ranges	Dyeing machines	Printing machines	Surface finishing equipment
United States	648	9 491	715	2 386
Alabama	27	318	20	69
California	9	253	29	24
Georgia	69	860	73	234
Maine	16	102	7	54
Massachusetts	55	441	59	188
New Hampshire	5	(D)	-	(D)
New Jersey	34	675	39	100
New York	7	270	(D)	53
North Carolina	182	3 163	123	785
Pennsylvania	36	682	(D)	140
Rhode Island	31	302	46	40
South Carolina	77	814	137	282
Tennessee	6	312	34	79
Texas	5	(D)	-	(D)
Virginia	48	551	47	128

APPENDIX Report Form



U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
FORM
MC-22Z

1987 CENSUS OF MANUFACTURES

SUPPLEMENTAL FORM — TEXTILE MACHINERY IN PLACE — JUNE 30, 1988

DMS APPROVAL NO. 0607-0616: EXPIRES 12/89

NOTICE — Response to this inquiry is required by law (title 13, U.S. Code, sections 131, 224, and 225). By section 9 of the same law, your report to the Census Bureau is confidential. It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

In correspondence pertaining to this report, please refer to this Census File Number (CFN)

Employer Identification (EI) Number

MC-22Z

PLEASE COMPLY WITH THE FOLLOWING REQUIREMENTS

BUREAU OF THE CENSUS
1201 East Tenth Street
Jeffersonville, IN 47132

DUE DATE: WITHIN 30 DAYS AFTER RECEIPT

Important — Please read

The industry totals compiled from data on this form will be published by the Bureau of the Census in a publication as soon as possible after all reports are received. Copies are available upon request to the Bureau of the Census.

If filing by due date causes an undue burden, a request for an extension of time should be sent to the above address. Please mention the 11-digit Census File Number in the upper left of the address box if you write regarding this report.

Please correct errors in name, address, and ZIP Code. ENTER street and number if not shown.

GENERAL INSTRUCTIONS

A separate Census report is required for each business location. Therefore, based on Census records, a report form is provided for each textile manufacturing location which your company is operating in 1988.

For purposes of the Census, a manufacturing establishment is defined as a single physical location where manufacturing operations are performed (e.g., a factory, mill, or plant). Thus a separate report is required for different physical locations even though the establishments may be engaged in the same line of manufacturing.

Report as "In Place" all machinery set up in operating positions even though the machinery was idle on June 30, 1988. (Include sample machinery.)

Cotton System Spindles — The term "cotton system spinning spindles" does not include spindles operated on the "American" and other new systems for spinning uncut top (see Woolen/Worsted, Section IV). The total number of

cotton system spindles should be reported, whether or not such spindles are used on cotton and these data should agree with the information you have reported on Census form M-22P or M-22P-S, section III.

Weavers (Section VII) — The total number of looms you report should agree with the identical information you have reported on Census form MQ-22T, section I, column 2.

In classifying weaving looms by width, use the maximum width which can be woven and not the finished width of the fabric as the basis for reporting the weaving width of the machine.

Carpet Tufting Machinery — In classifying tufting machines by width, use the tufting width of the machine or the maximum width which can be tufted and not the finished width of the goods or the machine bed width as the basis for reporting.

Section IA — EMPLOYER IDENTIFICATION NUMBER

Is the Employer Identification (EI) Number shown in the label the SAME as that used for this establishment on its latest 1987 Employer's Quarterly Federal Tax Return, Treasury Form 941?

1 ☐ YES

2 ☐ NO — Enter current EI Number

(9-digits)

Section IB — PHYSICAL LOCATION OF MANUFACTURING ESTABLISHMENT — The purpose of this inquiry is to determine the place (city, county, etc.) where your plant is actually located (which may differ from the mailing address) so that the data can be tabulated in the correct geographic area.

Is your manufacturing establishment physically located at the address shown in the address box in the right hand corner of this form?

1 ☐ YES

2 ☐ NO — Enter PHYSICAL location

*Street name and number

Place (City or village, etc.)

State

ZIP Code

*If location cannot be described by street name and number, give as much information as possible such as street intersection, highway number, or distance from nearest town, etc.

Section II — TYPE OF BUSINESS AND KIND OF OPERATION IN THIS ESTABLISHMENT

Line No.	Item (a)	Item code (b)	Mark (X) in appropriate boxes (c)	
			YES	NO
1	TYPE OF BUSINESS			
	Manufacturer — Making a product from own material (purchased, etc.)	0501	1 <input type="checkbox"/>	2 <input type="checkbox"/>
2	Jobber — Employing outside contractors to make a product from material that you supply	0503	1 <input type="checkbox"/>	2 <input type="checkbox"/>
3	Contractor or commission knitter			
	Making a product from material supplied to you by other companies (independent contractor)	0505	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4	Making a product from a material supplied to you by other establishments of your company (multiplant company contractor)	0507	1 <input type="checkbox"/>	2 <input type="checkbox"/>
5	Wholesaler or dealer — Buying and reselling products without arranging for further processing	0509	1 <input type="checkbox"/>	2 <input type="checkbox"/>
6	KIND OF OPERATION			
	Spinning yarns (Section III — Cotton System; Section IV — Woolen/Worsted)	0511	1 <input type="checkbox"/>	2 <input type="checkbox"/>
7	Throwing yarns	0513	1 <input type="checkbox"/>	2 <input type="checkbox"/>
8	Manmade fiber end yarn producer (Section V)	0515	1 <input type="checkbox"/>	2 <input type="checkbox"/>
9	Texturing, crimping, etc., of filament yarns (Section V)	0517	1 <input type="checkbox"/>	2 <input type="checkbox"/>
10	Weaving broad fabrics (over 12 inches in width) (Section VIII)	0519	1 <input type="checkbox"/>	2 <input type="checkbox"/>
11	Weaving or braiding narrow fabrics (12 inches or narrower in width) (Section XI)	0521	1 <input type="checkbox"/>	2 <input type="checkbox"/>
12	Nonwoven manufacturing (Section XII)	0523	1 <input type="checkbox"/>	2 <input type="checkbox"/>
13	Knitting fabrics or garments (Section IX)	0525	1 <input type="checkbox"/>	2 <input type="checkbox"/>
14	Dyeing and finishing woven fabrics (bleaching, dyeing, or printing) (Section XIV)	0527	1 <input type="checkbox"/>	2 <input type="checkbox"/>
15	Dyeing and finishing knit fabrics (bleaching, dyeing, or printing) (Section XIV)	0529	1 <input type="checkbox"/>	2 <input type="checkbox"/>
16	Dyeing and finishing yarns (Section XIV)	0531	1 <input type="checkbox"/>	2 <input type="checkbox"/>
17	Hosiery plant (Section XIII)	0533	1 <input type="checkbox"/>	2 <input type="checkbox"/>
18	Carpet producer (Section XIII)	0535	1 <input type="checkbox"/>	2 <input type="checkbox"/>
19	Carpet yarn heatsetting (Section VI)	0536	1 <input type="checkbox"/>	2 <input type="checkbox"/>
20	Cutting and/or sewing of textile or plastic products	0537	1 <input type="checkbox"/>	2 <input type="checkbox"/>
21	Other — Specify major activities	0539	1 <input type="checkbox"/>	2 <input type="checkbox"/>

PENALTY FOR FAILURE TO REPORT

CONTINUE ON PAGE 2 →

Section III — COTTON SYSTEM MACHINERY FOR PREPARATION OF COTTON AND MANMADE FIBER AND SPUN YARN (EXCLUDING MID FIBER SYSTEM): June 30, 1988

CT2

Line No.	Type of machine (e)			Item code (b)	Unit of measure (c)	Number in place June 30, 1988 (d)	
1	Automated bala feeding machines			1501	Number		
2	Automated blending machines			1502			
3	Pickers			1503			
4	Cards Chute fed			1504			
5	All others, including direct fed			1505			
6	Drawing			1511	Deliveries		
7	Combers			1513			
8	Roving machinery spindles			1515	Number		
9	SPINNING SPINDLES	Ring	Ring size				
10			1 3/4" and smaller	1517			
11			1 13/16" — 2 1/4"	1519			
12		Ringless	Rotor	2 5/16" and larger	1521		
13	1 3/4" and smaller			1525	Producing positions		
14				1 13/16" — 2 3/4"		1526	
15			2 13/16" and larger	1527			
16	AUTOMATIC SPINNING DOFFERS	All other		1528			
17		For ring spindles		1529	Number		
18	For ringless spinning		1530				
19	DOUBLING AND TWISTING SPINDLES	Ring spindles	Ring size				
20			4" and smaller	1531			
21	Larger than 4"		1532				
22	Two-for-one Twisting spindles			1533	Producing positions		
23	Throwing spindles (Includes up-twisters of either the conventional or two-for-one type)			1535	Number		
24	WINDERS, SPOOLERS	Automatic		1537	Producing positions		
25		Manual		1539			
26	VERIFICATION TOTAL (Sum of lines 1 — 23)			1550			

Section IV — WOOLEN AND WORSTED, INCLUDING MID FIBER, MACHINERY IN PLACE: JUNE 30, 1988

Line No.	Type of machine (a)			Item code (b)	Number in place June 30, 1988 (c)	
1	WOOLEN AND WORSTED CARDS	60" and below		1601		
2		Above 60"		1603		
3	Intersector gills			1604		
4	Worsted combers			1605		
5	Machine for converting manmade fiber tow to top or sliver			1608		
6	SPINDLES	For carpet	Woolen system spindles	1608		
7			Worsted and American (modified) system spindles	1609		
8			All other spinning systems spindles	1613		
9		For knitting including craft and hand knitting	Woolen system spindles	1621		
10			Worsted system spindles	1622		
11			American (modified) system spindles	1623		
12			All other spinning systems spindles	1627		
13		For all other uses	Woolen system spindles	1631		
14			Worsted system spindles	1633		
15			American (modified) system spindles	1635		
16			All other spinning systems spindles	1639		
17		Doubling and twisting spindles	Ring spindles	Ring size 4" and smaller	1646	
18				Larger than 4"	1645	
19			Two-for-one Twisting spindles		1647	
20		Throwing spindles (includes up-twisters of either the conventional or two-for-one type)			1649	
21		Winders spoolers	Automatic		1651	
22			Manual		1653	
23	VERIFICATION TOTAL (Sum of line 1—22)			1680		

CONTINUE ON PAGE 3 →

FORM MC-222

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUSPLEASE ENTER THIS ESTABLISHMENT'S
11-DIGIT CENSUS FILE NUMBER

1987 CENSUS OF MANUFACTURES

SUPPLEMENTAL FORM
TEXTILE MACHINERY IN PLACE — JUNE 30, 1988 — Continued

Name of establishment (Same as address box)

CT2

Section V — TEXTURED YARN MACHINERY FOR FILAMENT YARN PREPARATION (EXCLUDING CARPET YARN PREPARATION): JUNE 30, 1988

Line No.	Type of machine (a)	Item code (b)	Unit of measure (c)	Number in place June 30, 1988 (d)
1	TEXTURED YARN MACHINERY	False twist	Spindles	
2		Single heater		
3		Pin spindle		
4		Friction spindle		
5		Belt spindle		
6		Double heater		
7	Air jet	Pin spindle	Producing positions	
8		Friction spindle		
9		Belt spindle		
10		Free standing, nonintegrated unit		
11		Integrated with other texturing machines		
12		Two-for-one twisting spindles		
13	MACHINERY FOR FLAT FILAMENT YARN PREPARATION	Precision winders		
14		Two-for-one twisting spindles		
15	Direct cable twisters			
16				
17	VERIFICATION TOTAL (Sum of lines 1—12)		1740	

Section VI — CARPET YARN EQUIPMENT IN PLACE: JUNE 30, 1988

Line No.	Type of machine (a)	Item code (b)	Number in place June 30, 1988 (c)
1	FILAMENT CARPET YARN	Twisting (number of spindles)	
2		Direct cable	1751
3		Ply	1753
4		Two for one	1755
5		Heatsetting Autoclaves	1757
6	SPUN CARPET YARN	Continuous units	1759
7		Twisting (number of spindles)	
8		Direct cable	1781
9		Ply	1783
10		Two for one	1785
11	Heatsetting Autoclaves		1767
12		Continuous units	1769
13	VERIFICATION TOTAL (Sum of lines 1—10)		1780

Section VII — WARP PREPARATION EQUIPMENT IN PLACE: JUNE 30, 1988

Line No.	Type of loom (a)	Item code (b)	Unit of measure (c)	Number in place June 30, 1988 (d)
1	Warping end beaming equipment	1801	Number	
2	Slashing and sizing equipment	1805		
3	VERIFICATION TOTAL (Sum of lines 1 and 2)		1811	

Section VIII — BROAD FABRIC WEAVING LOOMS IN PLACE BY TYPE OF LOOM AND WIDTH: JUNE 30, 1988
(Report carpet looms separately in section X)

Line No.	Type of loom (a)	Width* (b)	Item code (c)	Number in place			
				Single shuttle (Cam and dobby) (d)	Multiple shuttle-box or Head motion looms (e)	Jacquard (f)	Double shuttle pile and plush (g)
4	SHUTTLE	53" and under	1851				
5		54" — 60"	1855				
6		61" — 80"	1867				
7		81" — 90"	1861				
8		91" and over	1863				
9	VERIFICATION TOTAL (Sum of lines 1—5)			1899			

*Width refers to the nominal reed width of the loom. Do not include narrow fabric looms (12 inches or less).

CONTINUE ON PAGE 4

Section VIII — BROAD FABRIC WEAVING LOOMS IN PLACE BY TYPE OF LOOM AND WIDTH: JUNE 30, 1988 — Continued
(Report carpet looms separately in section X)

Line No.	Type of loom (a)	Width* (b)	Item code (c)	Number in place	
				Single filling insertion (d)	Multi-filling insertion (e)
7	SHUTTERLESS	Water Jet			
8		70" end under	1901		
9		71" — 80"	1905		
10		81" — 90"	1907		
11		91" and over	1909		
12		Air Jet			
13		50" end under	1911		
14		51" — 60"	1912		
15		61" — 70"	1913		
16		71" — 80"	1914		
17		81" — 90"	1916		
18		91" — 110"	1916		
19		111" end over	1917		
20		Rapier			
21		50" end under	1921		
22		51" — 60"	1922		
23		61" — 70"	1923		
24		71" — 80"	1924		
25		81" — 90"	1925		
26		91" — 110"	1926		
27		111" end over	1927		
28		Projectile			
29		90" end under	1931		
30		91" — 110"	1933		
31		111" end over	1935		
32		All pile and plush	1951		
33		Other, total	1941		
34	VERIFICATION TOTAL (Sum of lines 1 — 29)			1999	

Section IX — KNITTING MACHINERY IN PLACE (EXCEPT HOSIERY AND KNIT-DEKNIT): JUNE 30, 1988

Line No.	Type of machine						Item code	Number in place June 30, 1988	
	(a)						(b)	(c)	
1	WEFT KNITTING	Garments, trims, and collars	Flat ber				2201		
2			Cylinder and dial				2207		
3			Circular lengths	Rib			2209		
4				Interlock			2211		
5			Circular headwear and other small diameter machines, excluding hosiery and knit-deknit				2213		
6		Yardgoods, outerwear, underwear, and industrial (including home furnishing)	Circular open top latch needle machines	Plein		2217			
7				Multiple track	Fleece	Two end	12—17 cut	2221	
8						18 cut end finer	2223		
9				Three end	12—17 cut	2225			
10					18 cut end finer	2227			
11				Other		2230			
12			Patterned jersey				2236		
13			Silver knit				2236		
14			Circular spring needle machines	Fleece	6—8 cut		2237		
15					9—14 cut		2238		
16					15 cut and finer		2236		
17				Other		2242			
18			Cylinder and dial machines	Interlock	18 cut end under			2243	
19					22—24 cut			2244	
20					28 cut end above			2246	
21		Rib body size underwear machines			2250				
22	Double knit, including eight lock								
23	18 cut and under			2257					
24	22—24 cut			2259					
25	28 cut and over			2261					
26	Purl or links			2269					
27	WARP KNITTING	Tricot (compound needle and spring beard)				2271			
28		Reschel elastic, power net				2273			
29		Reschel, all other				2274			
30		Weft insertion machines				2277			
		All other, including ketten reschal, simplex, milanese, loop vending				2278			
31	VERIFICATION TOTAL (Sum of lines 1—30)						2280		

*Width refers to the nominal reed width of the loom. Do not include narrow fabric looms (12 inches or less).

CONTINUE ON PAGE 5

FORM MC-222		U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS		PLEASE ENTER THIS ESTABLISHMENT'S 11-DIGIT CENSUS FILE NUMBER	
1987 CENSUS OF MANUFACTURES				Name of establishment (Same as address box) CT2	
SUPPLEMENTAL FORM TEXTILE MACHINERY IN PLACE — JUNE 30, 1988 — Continued					

Section X — NARROW FABRIC LOOMS IN PLACE (12 INCHES OR NARROWER IN WIDTH): JUNE 30, 1988

Line No.	Type of machine (a)	Item code (b)	Number in place June 30, 1988 (d)
1	TAPE LOOMS Shuttle	3101	
2	Shuttleless	3107	
3	WEBBING LOOMS Shuttle	3105	
4	Shuttleless	3107	
5	ELASTIC LOOMS Shuttle	3109	
6	Shuttleless	3111	
7	Braiders	3113	
8	VERIFICATION TOTAL (Sum of lines 1 — 7)		3120

Section XI — OTHER FABRIC FORMING EQUIPMENT: JUNE 30, 1988

Line No.	Type of machine (a)	Item code (b)	Number in place June 30, 1988 (c)
1	Fine gauge tufting (non-carpet end uses)	3201	
2	NONWOVEN FABRIC FORMING EQUIPMENT Needle looms	3203	
3	Web forming	3205	
4	Stitch bonding	3207	
5	All other nonwoven fabric forming equipment	3208	
6	VERIFICATION TOTAL (Sum of lines 1 — 5)		3211

Section XII — CIRCULAR HOSIERY MACHINERY IN PLACE: JUNE 30, 1988

Line No.	Type of machine (a)	Item code (b)	Number in place June 30, 1988 (c)
1	LADIES' HOSIERY MACHINES 1 feed	3502	
2	(PANTYHOSE, STOCKINGS, SHEER KNEEHIGH AND ANKLETS) 2 feed	3503	
3	3—4 feed	3505	
4	6—8 feed	3507	
5	MEN'S AND BOY'S SOCK MACHINES 1 feed	3508	
6	2 feed	3511	
7	3—4 feed	3513	
8	CHILDREN'S, INFANTS', WOMEN'S, AND MISSES' SOCK MACHINES 1 feed	3521	
9	2 feed	3531	
10	3—4 feed	3541	
11	VERIFICATION TOTAL (Sum of lines 1 — 10)		3599

Section XIII — CARPET AND RUG WEAVING LOOMS AND MACHINES IN PLACE: JUNE 30, 1988

Line No.	Type of machine (a)	Item code (b)	Number in place June 30, 1988 (c)
1	Weaving looms, by width	3601	
2	CARPET AND RUG TUFTING MACHINES, BY WIDTH Less than 9 feet	3603	
3	9—12 feet	3605	
4	15 feet and over	3607	
5	Custom carpet (multi-pass) tufting machines	3609	
6	Carpet braiding machines	3611	
7	Carpet knitting machines	3613	
8	Carpet and rug needle punch looms	3615	
9	Fusion bonding machines	3617	
10	VERIFICATION TOTAL (Sum of lines 1 — 9)		3699

CONTINUE ON PAGE 6 →

Section XIV — MACHINERY AND EQUIPMENT FOR FINISHING OF WOVEN AND KNITTED PIECE GOODS, YARN, AND CARPET: JUNE 30, 1988					
Line No.	Type of machine (e)		Item code (b)	Number in place June 30, 1988 (d)	
1	PREPARATORY EQUIPMENT (SCOURING AND BLEACHING RANGES)	Rope	4111		
2		Open width	4113		
3		Other	4115		
4	Mercerizing ranges		4117		
5	DYEING EQUIPMENT	Raw stock dyeing machines (Report total number of klers or kettles)		4119	
6		Yarn dyeing machines	Package yarn dyeing machines (Report total number of klers or kettles)	4121	
7			Beam dyeing machines	4123	
8			Continuous dyeing machines	4125	
9			Skeln dyeing machines	4127	
10			Other yarn dyeing machines	4129	
11		Batch fabric dyeing machines	Jigs	4131	
12			Padders	4133	
13			Becks (boxes, winches, dye kettles, etc.)	Atmospheric type	4135
14				Pressure type	4137
16			Jet dyeing machines	4139	
16			Beam dyeing	4141	
17		Other batch dyeing machines	4143		
16		Continuous fabric dyeing ranges	Thermosol-pad-steam ranges	4145	
19			Other continuous ranges	4147	
20		Carpet dyeing machines		4149	
21		Garment dyeing machines		4151	
22		PRINTING EQUIPMENT	Roller printing machines (center cylinder type)		4145
23			Screen printing machines	Flat screen	4155
24	Rotary screen			4157	
25	Carpet printing			4167	
26	Continuous piece goods		4169		
27	All other printing equipment		4171		
28	SELECTED FINISHING EQUIPMENT	Compressive shrinkage machines	For woven fabrics	4173	
29			For knit fabrics	4175	
30		Tenter frames		4181	
31		Solvent processing units (batch and continuous)		4183	
32		Decating		4185	
33		Fulling mills		4187	
34		Surface finishing equipment	Napping	4189	
35			Shearing	4191	
36			Brushing, sueding, and sanding	4193	
37			Embossing	4195	
38			Calendering	4197	
39		Corduroy and velvet cutting machines		4199	
40	VERIFICATION TOTAL (Sum of lines 1—39)			4200	

REMARKS — Please use this space for any explanations that may be essential in understanding your reported data.

Section XV — CERTIFICATION						
Name of person to contact regarding this report — Print or type				Address — Number and street		
Telephone —————→	Area code	Number	Extension	City	State	ZIP Code
Name of company				This report is substantially accurate and covers the date of		
Address — Number and street				Signature of authorized person		
City	State	ZIP Code	Title	Date		

PUBLICATION PROGRAM

1987 CENSUS OF MANUFACTURES

Publications of the 1987 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

Preliminary Reports

Industry series—83 reports (MC87-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the U.S. and States are released in one report.

Final Reports

Industry series—83 reports (MC87-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries ("dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment. State and degree of primary product specialization.

Geographic area series—51

A separate report is being published for the District of Columbia. Each report covers groups and industries on value of products shipped, value added by manufacture, employment, new capital expenditures, and number of establishments for the State, MSA's, and counties. Comparative statistics for earlier years are provided for State and large MSA's. Manufactures for each county and for places with significant population. Detailed statistics (including inventory and costs) are presented only in state and large MSA reports.

Subject series—7 reports (MC87-S-1 to -7)

Each of the seven reports contains data on individual subject, such as concentration of industry, type of organization, water use in manufacturing, concentration in place, distribution of sales by type of product, and foreign shipments to the Federal Government. A national-level summary.

Reference series—1 report (MC87-R-1)

The Numerical List of Manufactures includes a description of the principal products of each industry published in the 1987 Censuses of Manufactures.

Location of Manufacturing Plants—1 report (MC87-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and zip codes for each State. (This report is available only on magnetic tape and CD-ROM.)

Analytical Reports—3 reports (AR87-1 to -3)

Exports From Manufacturing Establishments (AR87-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR87-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Indexes of Production (AR87-3)

The indexes presented in this report are designed to measure the change in physical output of each manufacturing and mineral industry between 1982 and 1987.

MICROFICHE

Published report in the 1987 Census of Manufactures is available on microfiche.

COMPUTER TAPES AND

Industry series, geographic area series, and Location of Manufacturing Plants report will be available on magnetic tape and compact discs-read only memory. These reports will provide the same information found in the printed data products are available for microfilm, microfiche, or process large format products, with corresponding technical information. Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

CENSUSES REPORTS

Manufactures, wholesale trade, service industries, nonmanufacturing industries, transportation, entertainment, and women-owned businesses, and women-owned businesses. The 1987 Economic Census of reports covers the censuses of the United States, Virgin Islands of the United States, and the Mariana Islands. Separate announcements are available free of charge from the Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

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